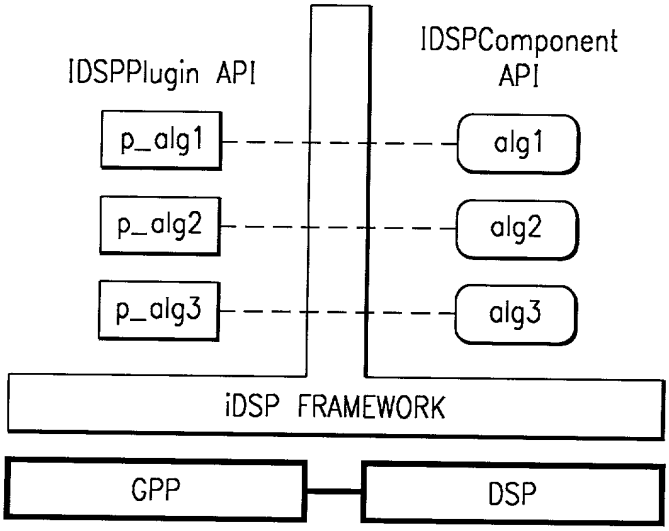

IDSPPlugin API
IDSPComponent API
p_alg1
p_alg2
p_alg3
alg1
alg2
alg3
iDSP FRAMEWORK
GPP
DSP

FIG. 1a

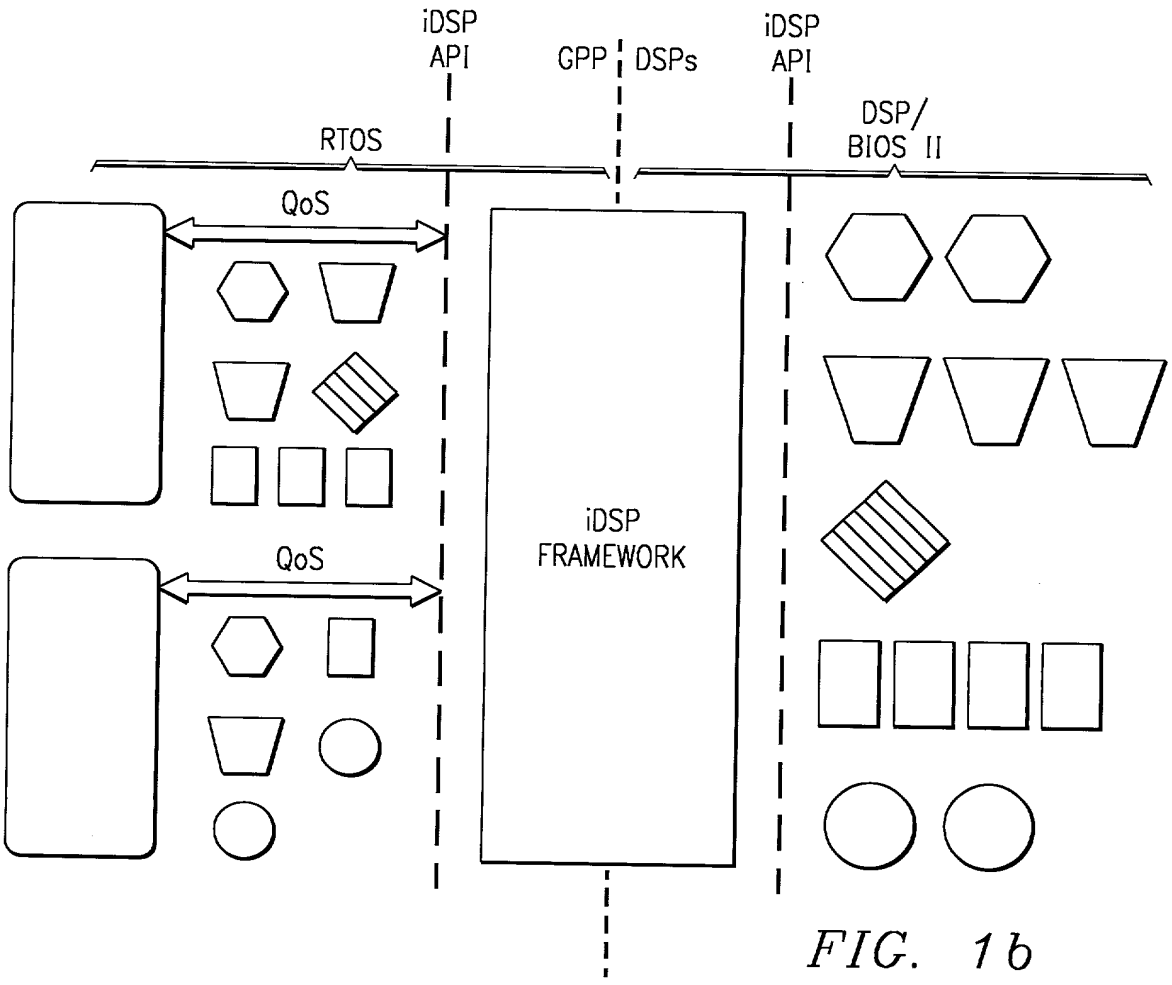

iDSP API
GPP
DSPs
iDSP API
RTOS
DSP/ BIOS II
QoS
QoS
iDSP FRAMEWORK

FIG. 1b

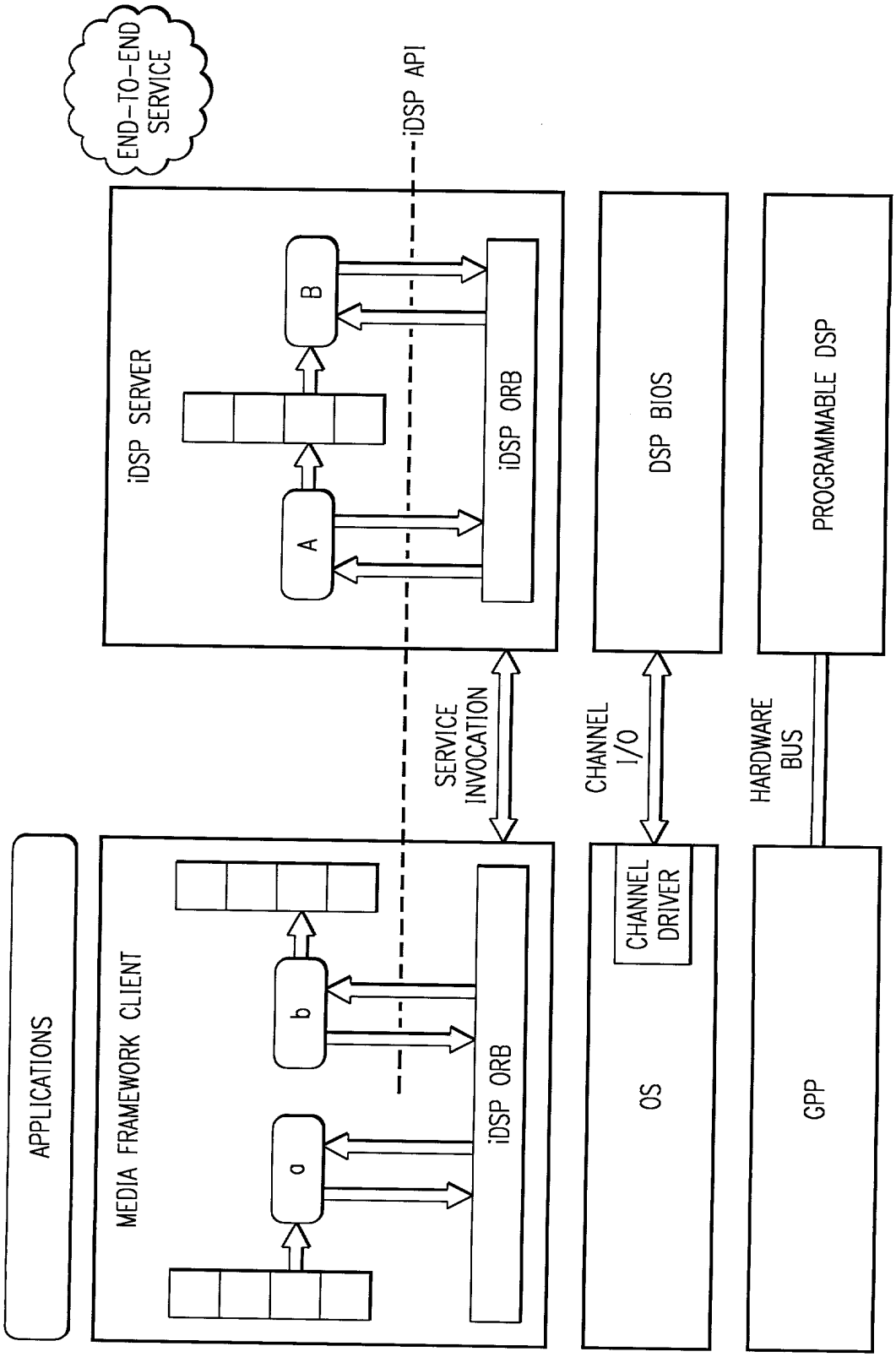

END-TO-END SERVICE
iDSP API
iDSP SERVER
B
A
iDSP ORB
DSP BIOS
PROGRAMMABLE DSP
SERVICE INVOCATION
CHANNEL I/O
HARDWARE BUS
APPLICATIONS
MEDIA FRAMEWORK CLIENT
b
a
iDSP ORB
CHANNEL DRIVER
OS
GPP

FIG. 1c

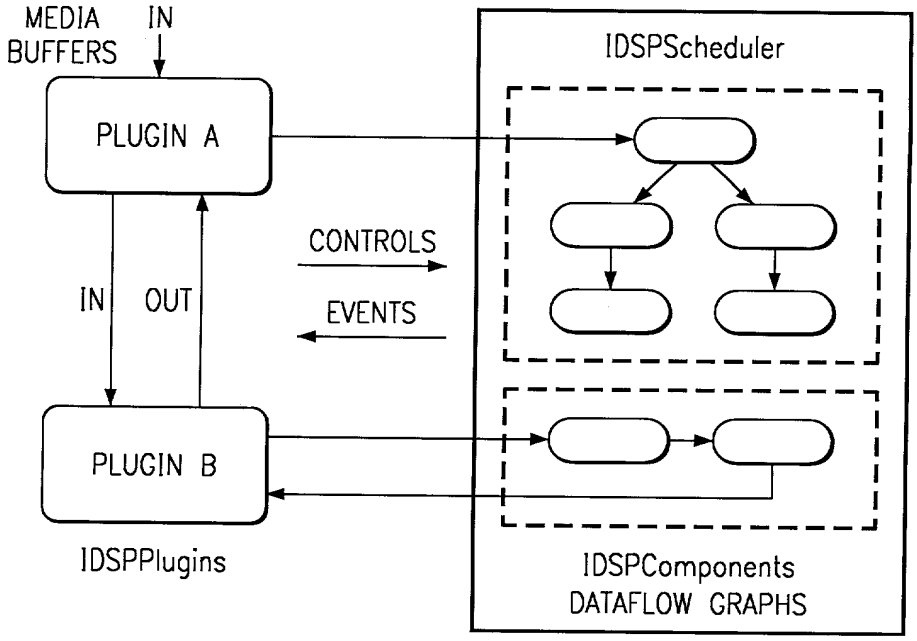

MEDIA BUFFERS
IN
PLUGIN A
IN
OUT
CONTROLS
EVENTS
PLUGIN B
IDSPPlugins
IDSPScheduler
IDSPComponents
DATAFLOW GRAPHS

FIG. 2a

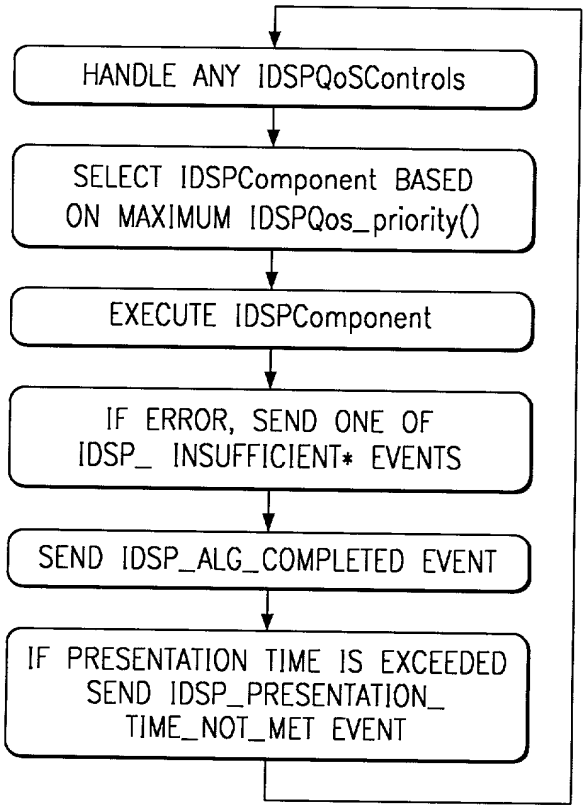

HANDLE ANY IDSPQoSControls
SELECT IDSPComponent BASED ON MAXIMUM IDSPQos_priority()
EXECUTE IDSPComponent
IF ERROR, SEND ONE OF IDSP_ INSUFFICIENT* EVENTS
SEND IDSP_ALG_COMPLETED EVENT
IF PRESENTATION TIME IS EXCEEDED SEND IDSP_PRESENTATION_ TIME_NOT_MET EVENT

FIG. 2b

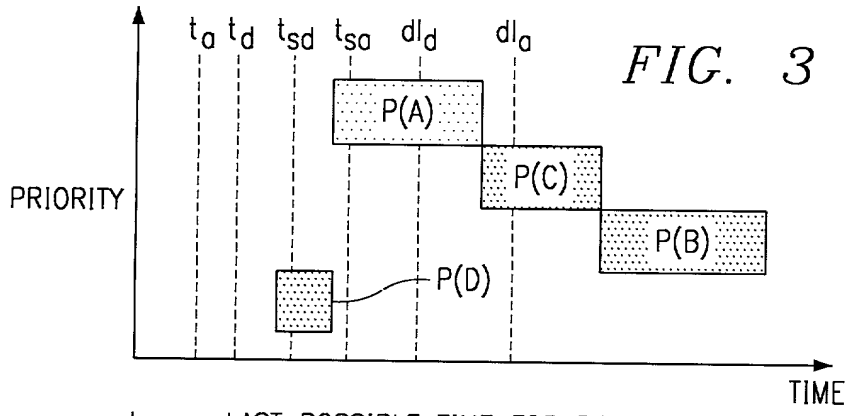


FIG. 3

t_{sa} = LAST POSSIBLE TIME FOR PROCESS A TO START AND STILL MAKES ITS DEADLINE

t_{sd} = LAST POSSIBLE TIME FOR PROCESS D TO START AND STILL MAKE ITS DEADLINE

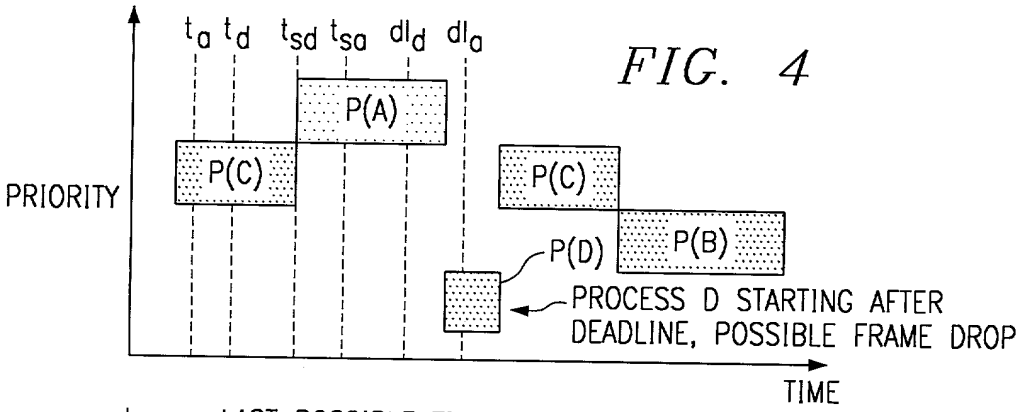


FIG. 4

t_{sa} = LAST POSSIBLE TIME FOR PROCESS A TO START AND STILL MAKES ITS DEADLINE

t_{sd} = LAST POSSIBLE TIME FOR PROCESS D TO START AND STILL MAKE ITS DEADLINE

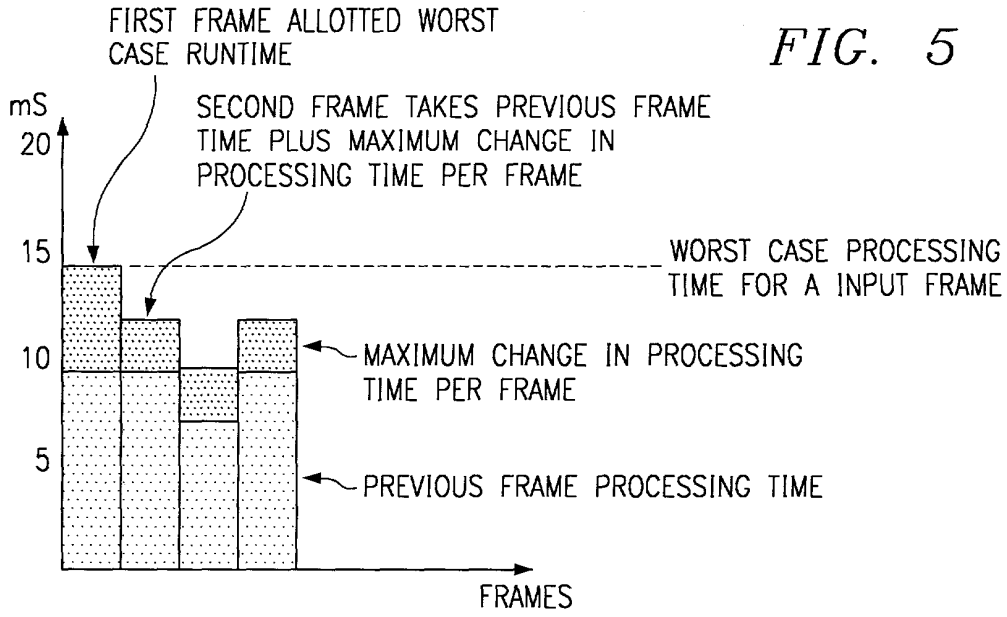


FIG. 5

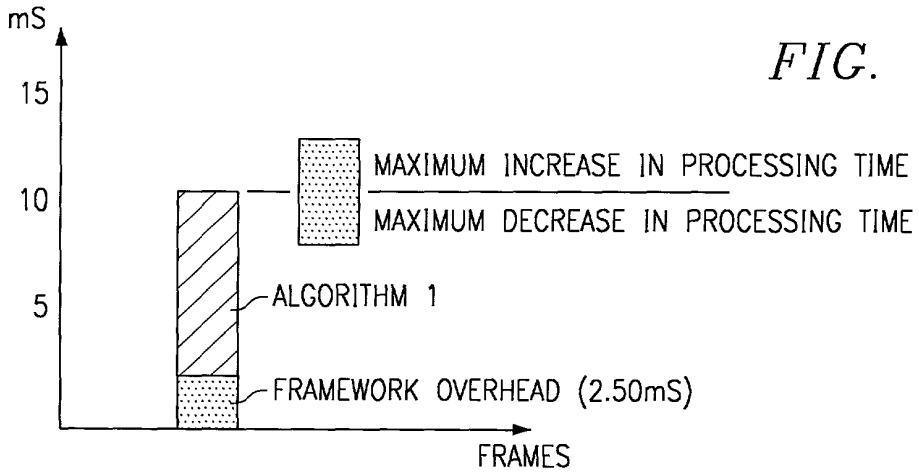


FIG. 6

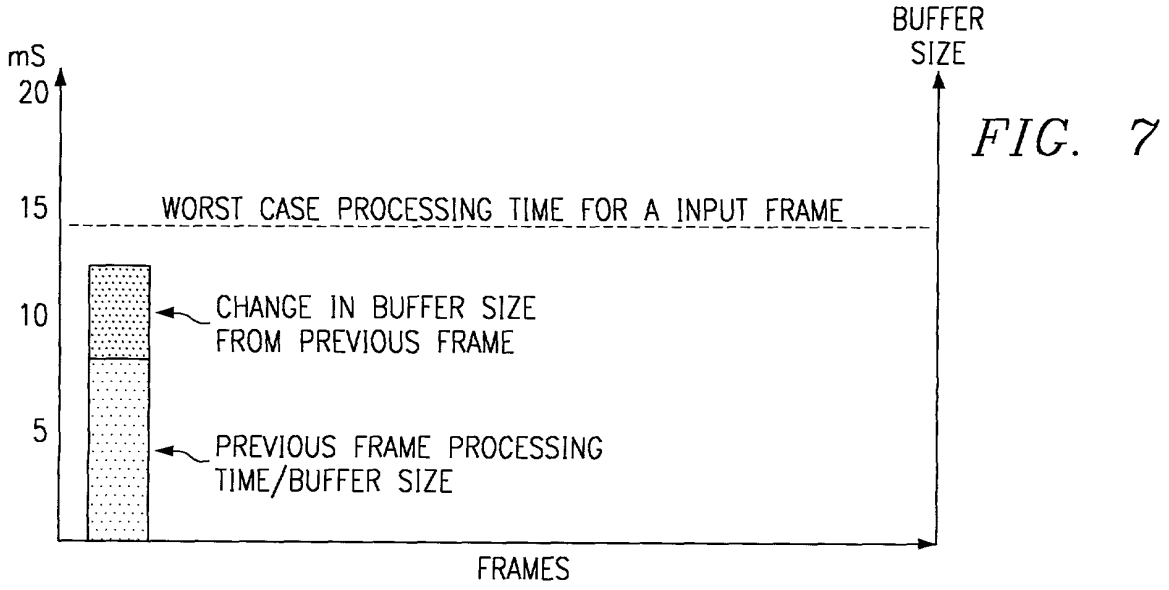


FIG. 7

FIG. 8

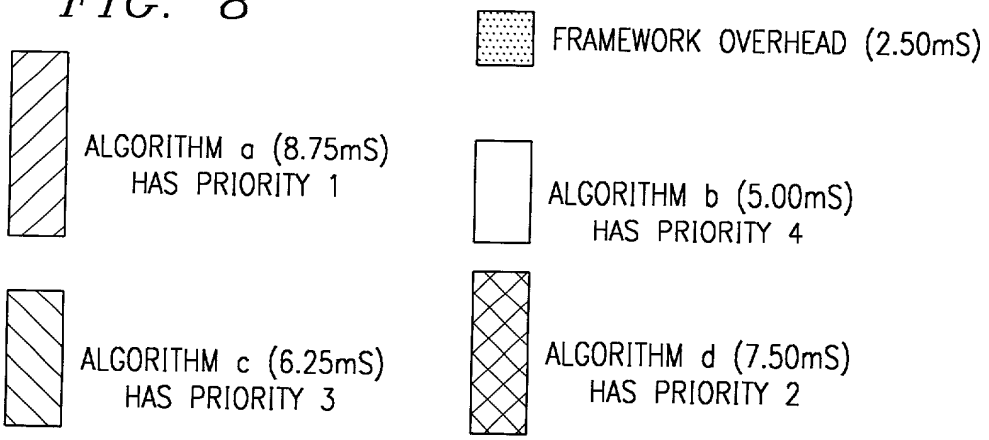
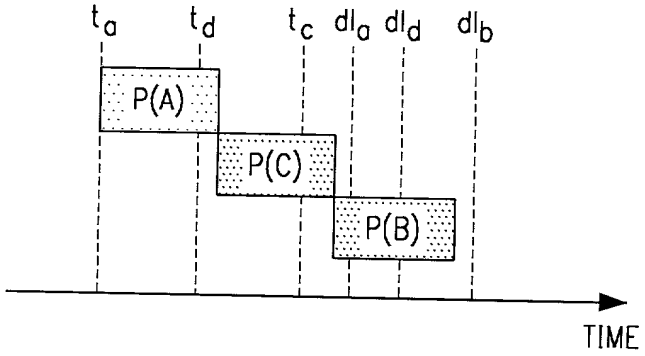


FIG. 9

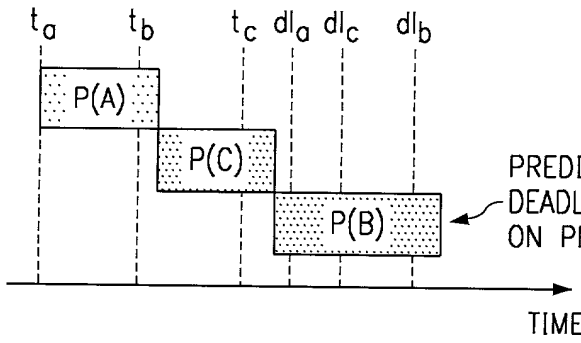


t_i = TIME STAMP ARRIVAL OF EACH DATA FRAME FOR THE RESPECTIVE PROCESS

dl_i = DEADLINE FOR FINISHING PROCESSING OF EACH RECEIVED DATA FRAME

P() = PREDICTION OF PROCESSING TIME FOR EACH RECEIVED DATA FRAME

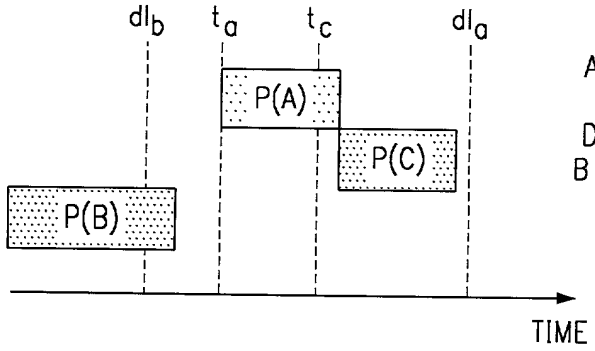
FIG. 10



t_i = TIME STAMP ARRIVAL OF EACH DATA FRAME FOR THE RESPECTIVE PROCESS

dl_i = DEADLINE FOR FINISHING PROCESSING OF EACH RECEIVED DATA FRAME

P() = PREDICTION OF PROCESSING TIME FOR EACH RECEIVED DATA FRAME



BOTH PROCESS A AND C ARE PREDICTED TO COMPLETE BEFORE THEIR RESPECTIVE DEADLINES MEANING PROCESS B MISSING ITS DEADLINE DOES NOT RIPPLE THROUGH THE SYSTEM (YET)

t_i = TIME STAMP ARRIVAL OF EACH DATA FRAME FOR THE RESPECTIVE PROCESS

dl_i = DEADLINE FOR FINISHING PROCESSING OF EACH RECEIVED DATA FRAME

P() = PREDICTION OF PROCESSING TIME FOR EACH RECEIVED DATA FRAME

FIG. 11

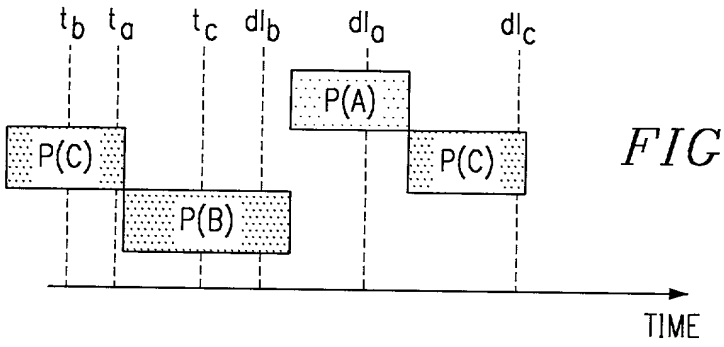


FIG. 12

t_i = TIME STAMP ARRIVAL OF EACH DATA FRAME FOR THE RESPECTIVE PROCESS

dl_i = DEADLINE FOR FINISHING PROCESSING OF EACH RECEIVED DATA FRAME

P() = PREDICTION OF PROCESSING TIME FOR EACH RECEIVED DATA FRAME

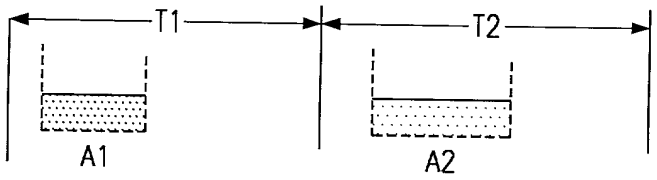


FIG. 13a

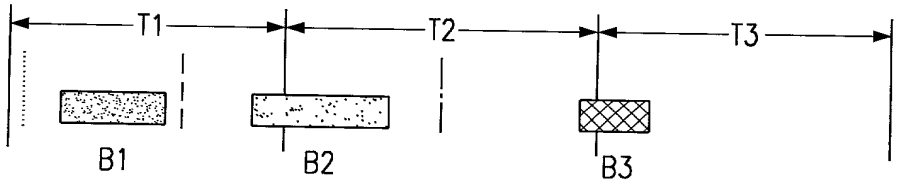


FIG. 13b

..... ARRIVAL OF BUFFER B1

– – – ARRIVAL OF BUFFER B2

—·— ARRIVAL OF BUFFER B3

FIG. 14

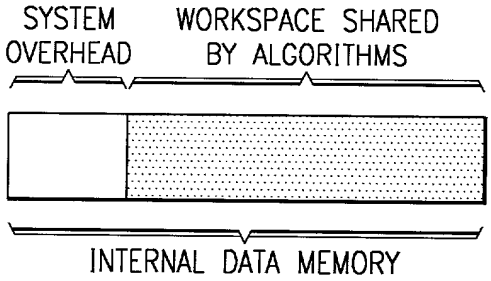
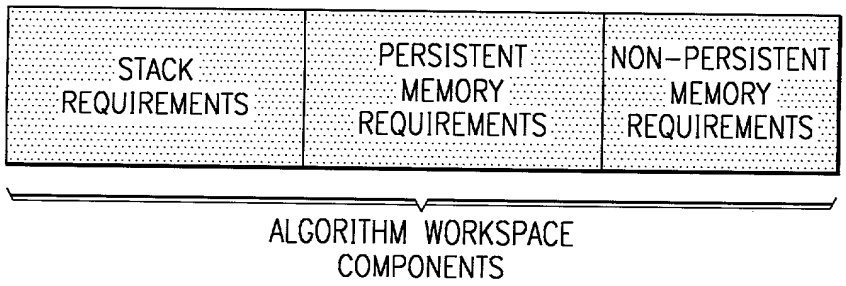


FIG. 15



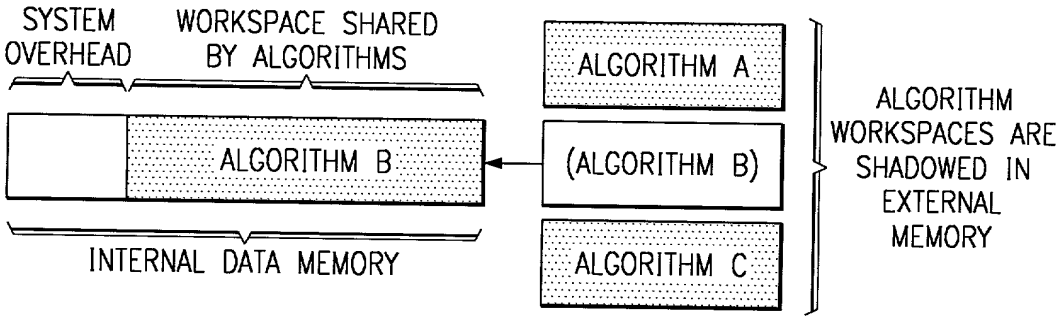
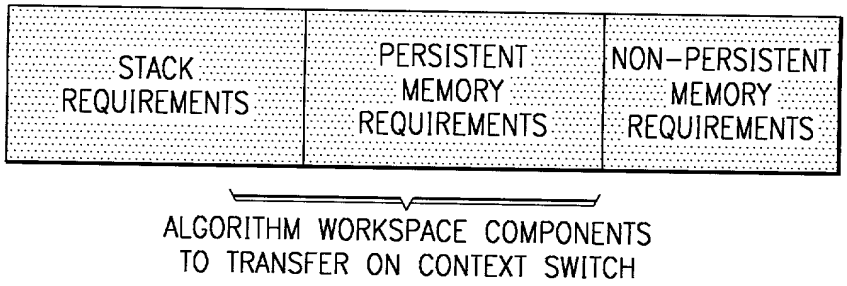


FIG. 16

FIG. 17



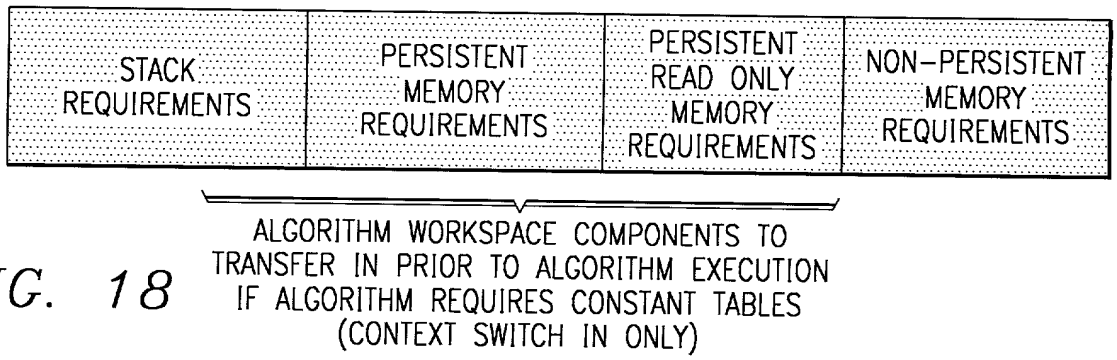


FIG. 18

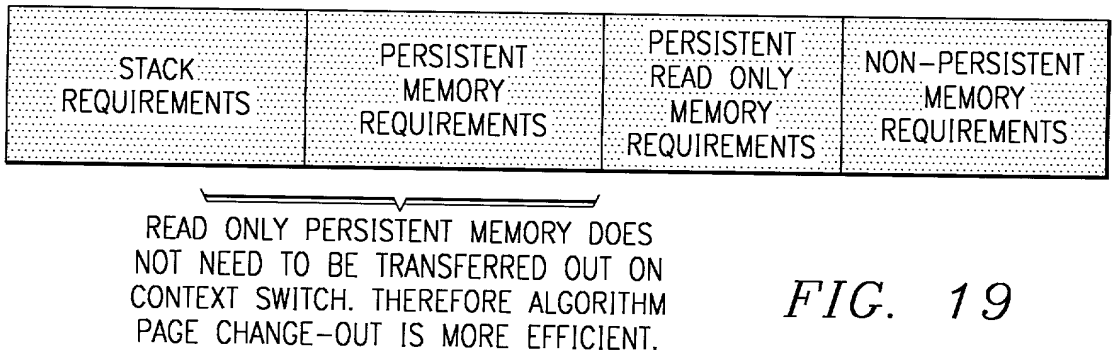


FIG. 19

FIG. 20
(PRIOR ART)

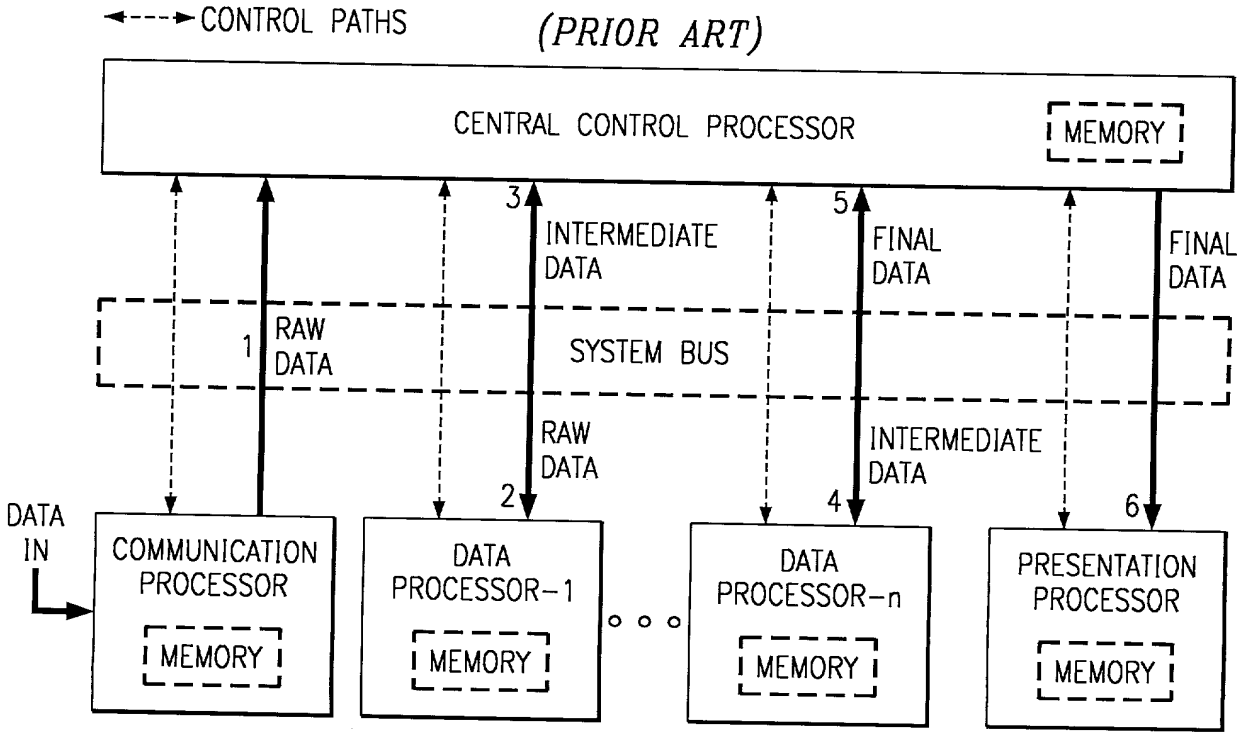


FIG. 21

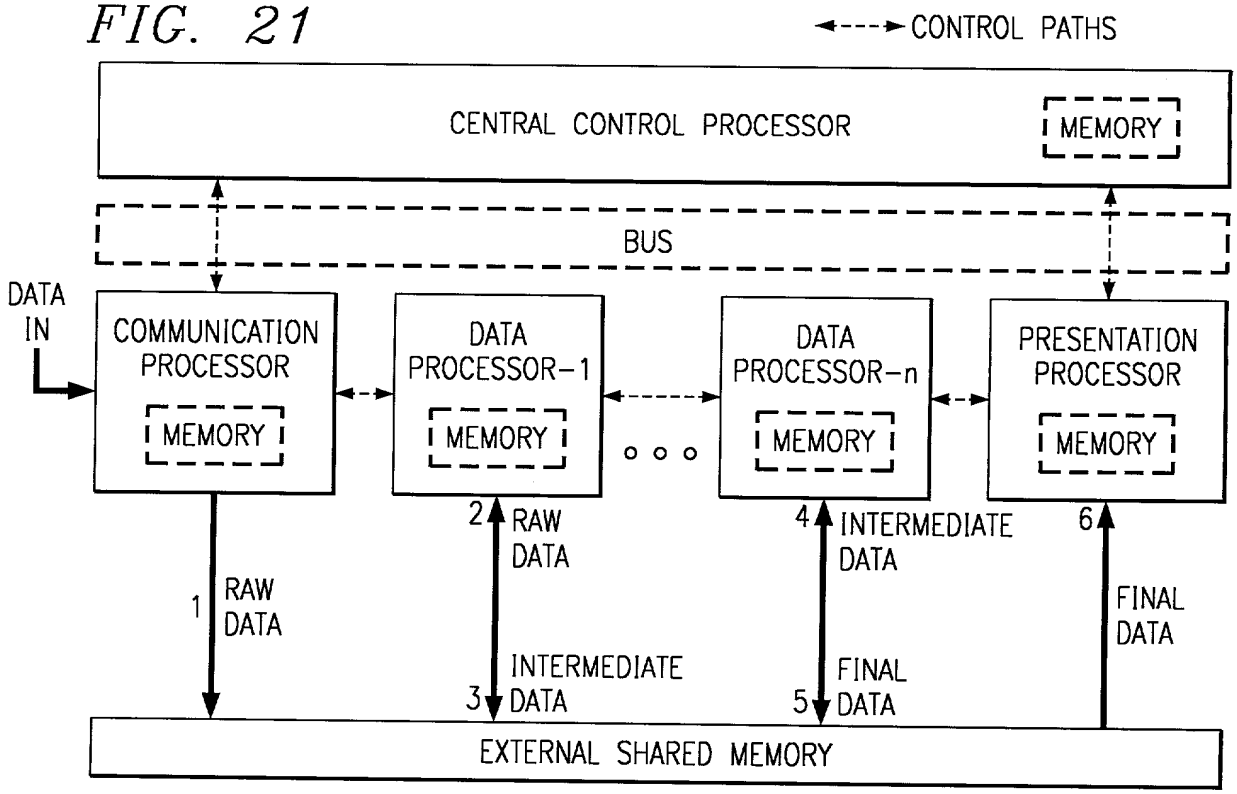
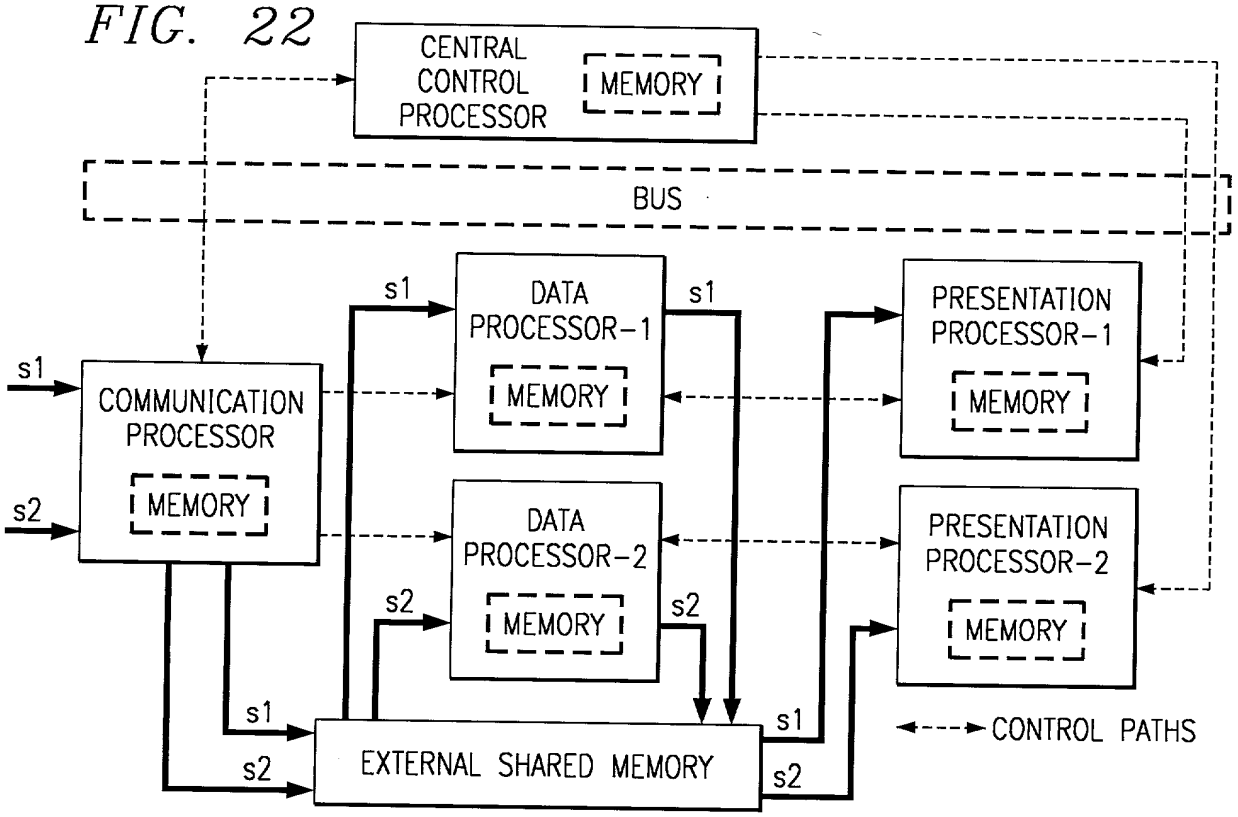

CONTROL PATHS
CENTRAL CONTROL PROCESSOR
MEMORY
BUS
DATA IN
COMMUNICATION PROCESSOR
MEMORY
DATA PROCESSOR-1
MEMORY
DATA PROCESSOR-n
MEMORY
PRESENTATION PROCESSOR
MEMORY
1 RAW DATA
2 RAW DATA
3 INTERMEDIATE DATA
4 INTERMEDIATE DATA
5 FINAL DATA
6 FINAL DATA
EXTERNAL SHARED MEMORY

FIG. 22


CENTRAL CONTROL PROCESSOR
MEMORY
BUS
s1
s2
COMMUNICATION PROCESSOR
MEMORY
DATA PROCESSOR-1
MEMORY
DATA PROCESSOR-2
MEMORY
PRESENTATION PROCESSOR-1
MEMORY
PRESENTATION PROCESSOR-2
MEMORY
EXTERNAL SHARED MEMORY
CONTROL PATHS

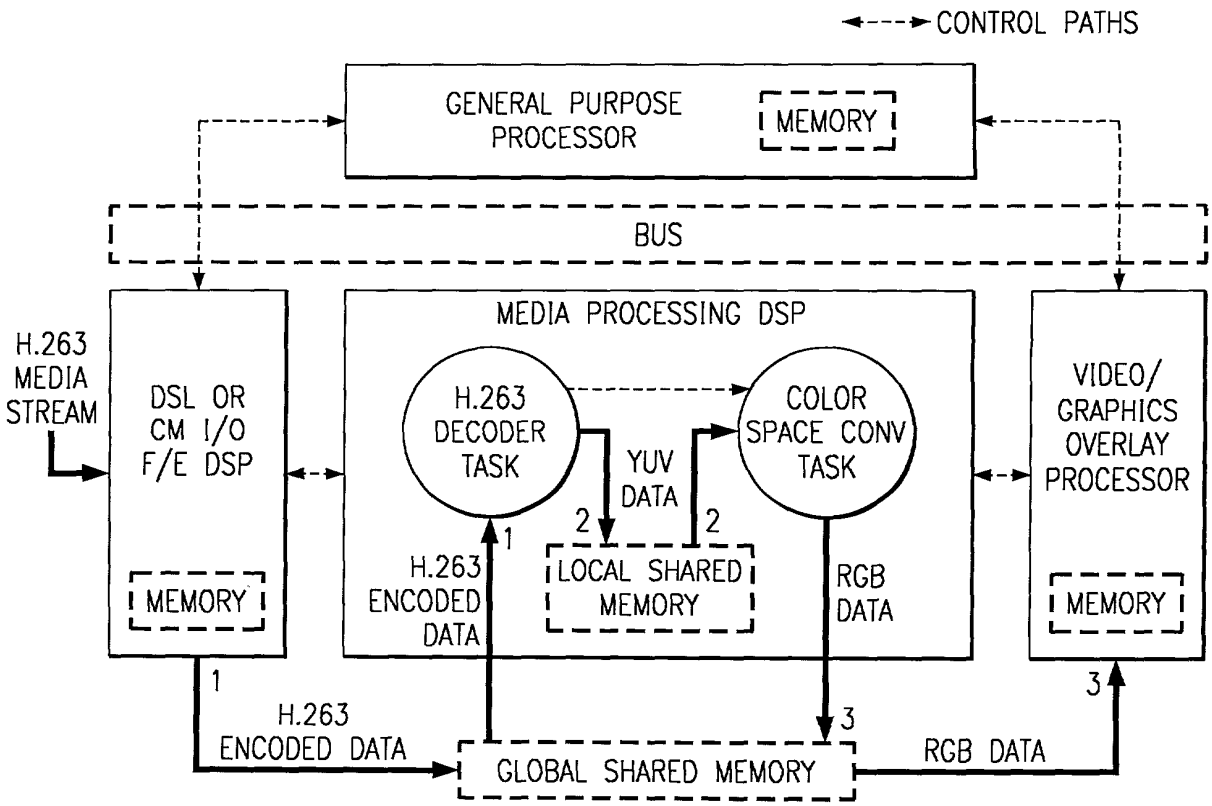

CONTROL PATHS
GENERAL PURPOSE PROCESSOR
MEMORY
BUS
H.263 MEDIA STREAM
DSL OR CM I/O F/E DSP
MEMORY
MEDIA PROCESSING DSP
H.263 DECODER TASK
YUV DATA
COLOR SPACE CONV TASK
H.263 ENCODED DATA
LOCAL SHARED MEMORY
RGB DATA
VIDEO/ GRAPHICS OVERLAY PROCESSOR
MEMORY
1
2
2
1
3
3
H.263 ENCODED DATA
GLOBAL SHARED MEMORY
RGB DATA

FIG. 23

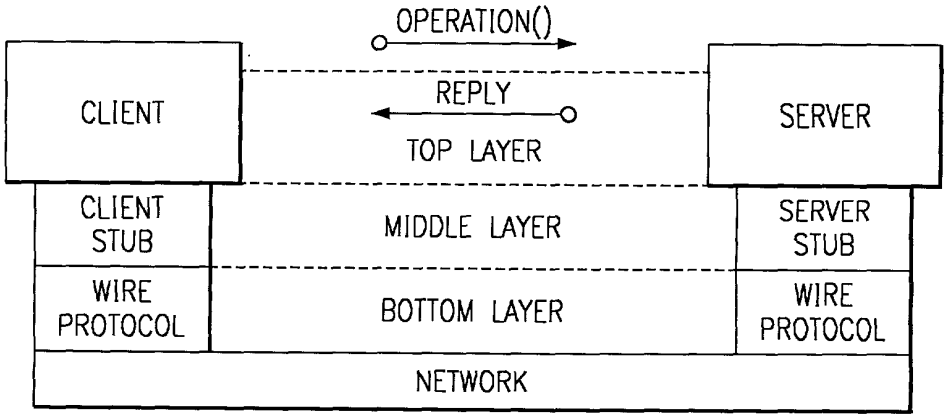

OPERATION()
REPLY
CLIENT
SERVER
TOP LAYER
CLIENT STUB
MIDDLE LAYER
SERVER STUB
WIRE PROTOCOL
BOTTOM LAYER
WIRE PROTOCOL
NETWORK

FIG. 24

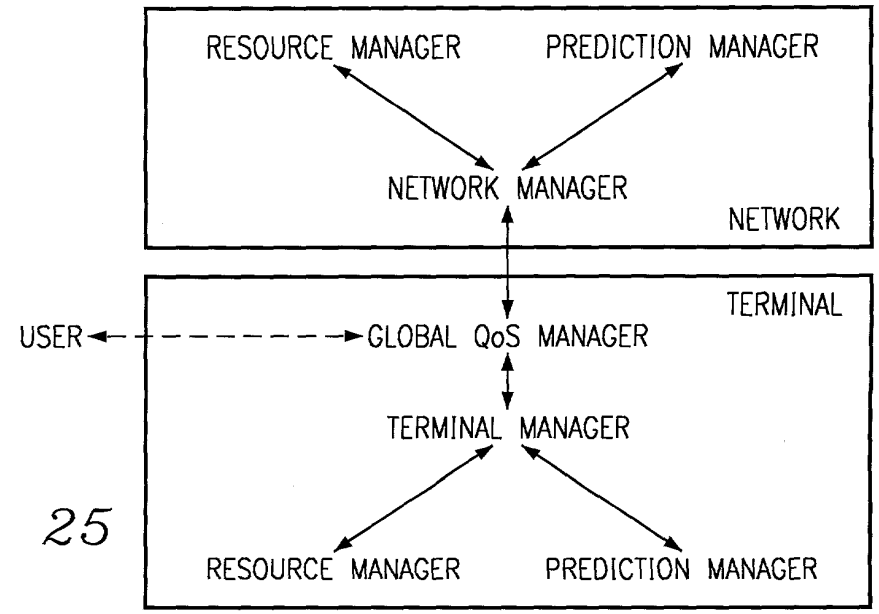


FIG. 25

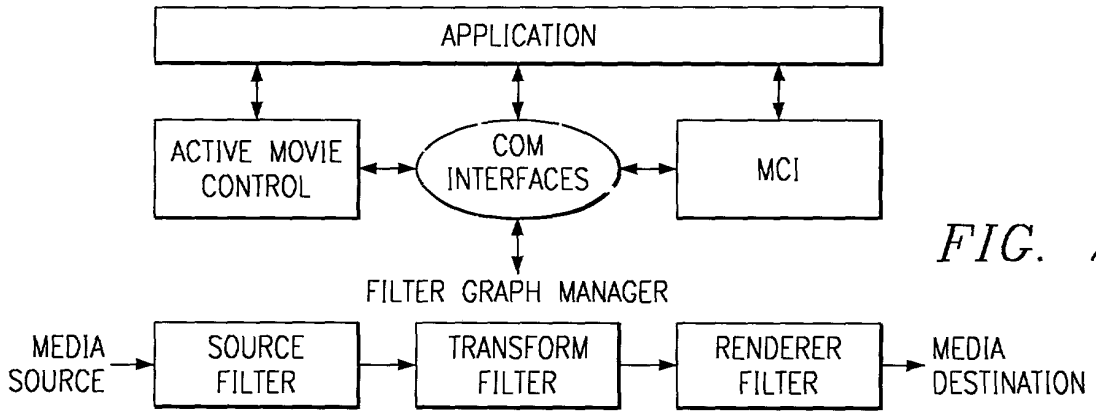


FIG. 26

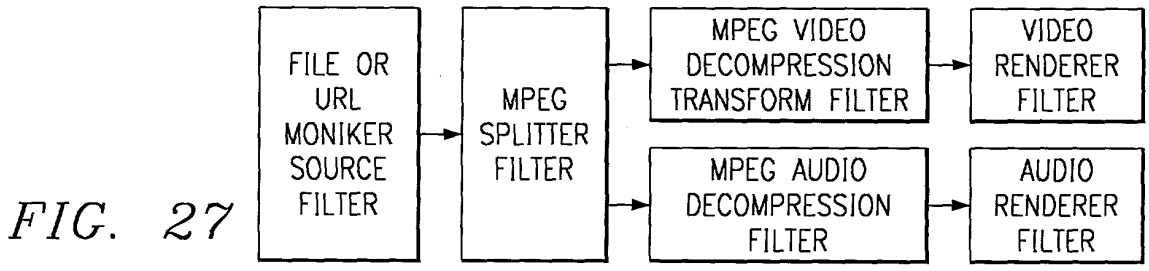


FIG. 27

FIG. 28